WHAT IS CLAIMED IS:

1. A system comprising:

an ionization device for generating ions and electrons having:

an insulating element having at least one opening;

a first conductive electrode extending on a first surface of said insulating element in or near the at the at least one opening;

a second conductive electrode extending on a second surface of said insulating element in or near the at the at least one opening; and

wherein said insulating element separates said first and second conductive electrodes at the at least one opening by a width of said insulating element which is less than the mean-free-path of molecules being ionized; and

an electron delivery unit coupled to said ionization device for receiving electrons generated therefrom for delivery to at least one device chosen from the group consisting of: light sources, electron bombardment sensors, thyratrons, vacuum tubes, plasma displays, microwave switches.

2. The system of claim 1 further comprising:

an electric potential generation unit coupled to said ionization device for applying a potential difference between said first and second conductive electrodes to generate an ionization field within the at least one opening to ionize molecules passing therethrough.

3. The system of claim 1 further comprising a substrate having at least one opening corresponding to the at least one opening of said insulating element for structurally supporting said insulating element.

4. The system of claim 1 wherein the vacuum tube is selected from the group consisting of: diodes, triodes, tetrodes, pentodes.

5. The system of claim 1 wherein the light source is a fluorescent light source.

6. A system comprising:

an ionization device for generating ions and electrons having:

an insulating element having at least one opening;

a first conductive electrode extending on a first surface of said insulating element in or near the at the at least one opening;

a second conductive electrode extending on a second surface of said insulating element in or near the at the at least one opening; and

wherein said insulating element separates said first and second conductive electrodes at the at least one opening by a width of said insulating element which is less than the mean-free-path of molecules being ionized; and

an ion delivery unit coupled to said ionization device for receiving ions generated therefrom for delivery to at least one device chosen from the group consisting of: ion focused milling devices, maskless ion implantation devices, ion beam lithography devices, semiconductor mask modification devices, semiconductor chip wiring devices.

7. The system of claim 6 further comprising:

an electric potential generation unit coupled to said ionization device for applying a potential difference between said first and second conductive electrodes to generate an ionization field within the at least one opening to ionize molecules passing therethrough.

8. The system of claim 7 further comprising a substrate having at least one opening corresponding to the at least one opening of said insulating element for structurally supporting said insulating element.

9. A system for generating a uni-polar plasma comprising:

an ionization device having:

an insulating element having at least one opening;

a first conductive electrode extending on a first surface of said insulating element in or near the at the at least one opening;

a second conductive electrode extending on a second surface of said insulating element in or near the at the at least one opening; and

wherein said insulating element separates said first and second conductive electrodes at the at least one opening by a width of said insulating element which is less than the mean-free-path of molecules being ionized; and

an electric potential generation unit coupled to said ionization device for applying a potential difference between said first and second conductive electrodes to generate an ionization field within the at least one opening to ionize molecules passing therethrough to generate a uni-polar plasma; and

an acceleration unit generating electric or magnetic fields for pumping the uni-polar plasma to a desired location.

10. A method comprising the steps of:

producing an ionization device, further comprising the steps of:

providing an insulating element having at least one opening;

extending a first conductive electrode on a first surface of said insulating element in or near the at least one opening;

extending a second conductive electrode on a second surface of said insulating element in or near the at least one opening;

separating said first and second conductive electrodes with the insulating element at the at least one opening;

separating said first and second conductive electrodes by a width of said insulating element;

making said width of insulating element equal to or less than the mean free path at ambient temperature and pressure of material being ionized

applying a potential across the first and second conductive electrodes to generate ionization fields to generate ions and electrons;

coupling an electron delivery unit to said ionization device; and

diverting the electrons to generate an electron source;

using the diverted electrons by a device chosen from the group consisting of: light sources, electron bombardment sensors, thyratrons, vacuum tubes, plasma displays, microwave switches.

11. The method of claim 10 further comprising coupling said insulating element to a substrate having at least one opening corresponding to the at least one opening of said insulating element for structurally supporting said insulating element.

12. The method of claim 10 wherein the vacuum tube is selected from the group consisting of: diodes, triodes, tetrodes, pentodes.

13. The method of claim 10 wherein the light source is a fluorescent light source.

14. A method comprising the steps of:

producing an ionization device, further comprising the steps of:

providing an insulating element having at least one opening;

extending a first conductive electrode on a first surface of said insulating element in or near the at least one opening;

extending a second conductive electrode on a second surface of said insulating element in or near the at least one opening;

separating said first and second conductive electrodes with the insulating element at the at least one opening;

separating said first and second conductive electrodes by a width of said insulating element;

making said width of insulating element equal to or less than the mean free path at ambient temperature and pressure of material being ionized

applying a potential across the first and second conductive electrodes to generate ionization fields to generate ions and electrons;

coupling an ion delivery unit to said ionization device;

diverting the ions to generate an ion source; and

using the diverted ions for an application chosen from the group consisting of: ion focused milling, maskless ion implantation, ion beam lithography, semiconductor mask modifications, semiconductor chip wiring.

15. The method of claim 14 further comprising coupling said insulating element to a substrate having at least one opening corresponding to the at least one opening of said insulating element for structurally supporting said insulating element.

16. A system comprising:

ionization means for generating ions and electrons having:

separator means having at least one opening;

a first conductive electrode extending on a first surface of said separator means in or near the at the at least one opening;

a second conductive electrode extending on a second surface of said separator means in or near the at the at least one opening; and

wherein said separator means separates said first and second conductive electrodes at the at least one opening by a width of said separator means which is less than the mean-free-path of molecules being ionized; and

electron delivery means for delivering electrons to devices requiring an electron source.

17. A system comprising:

ionization means for generating ions and electrons having:

separator means having at least one opening;

a first conductive electrode extending on a first surface of said separator means in or near the at the at least one opening;

a second conductive electrode extending on a second surface of said separator means in or near the at the at least one opening; and

wherein said separator means separates said first and second conductive electrodes at the at least one opening by a width of said separator means which is less than the mean-free-path of molecules being ionized; and

ion delivery means for delivering ions to devices requiring an ion source.